

HIT THE ROAD, JACK: THE AUTO INDUSTRY AS THE NEXT VEHICLE FOR PREDATORY INFRINGEMENT

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ABSTRACT

While patents, patent litigation, and patent pools have been part of the automotive industry since the late-1800s, the prevalence of technology covered by standards and accompanying standard essential patents (SEPs) is much more recent. Today's smart cars and the widespread incorporation of telecommunication and Internet of Things standards in vehicles raise concerns about how well the automotive industry will be able to adapt to this new SEP-laden future.

This article predicts that predatory infringement of SEPs for two related reasons. First, although some industries, such as telecommunications, have long dealt with SEPs, the incorporation of standardized technology is more recent in automotives. The automotive industry has experience with patents and will undoubtedly mature into a level of comfort with SEPs, but because they are late to the SEP game, it is likely that automotive SEP policy will be driven by existing precedent from other industries. This is a problem because of the second reason, which is the fact that the history of patent licensing in the automotive industry has been quite different from that in telecommunications. Although patent licenses had usually been taken at the component manufacturer or supplier level, SEPs are often licensed at the end-user or final product level. This licensing shift in the car industry, coupled with its infancy in the SEP space, create an easy road for predatory infringement to occur.

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I. INTRODUCTION

Patents are not new in the car industry. Mercedes-Benz touts its 1886 German patent for a “vehicle powered by a gas engine” as “the birth certificate of the automobile.”¹ George Selden is credited for the first U.S. patent on an automobile for his “improved road engine;” the patent was filed in 1879, but not granted until 1895, after spending some sixteen years in prosecution.² Today, the automotive industry remains innovative, spending over \$116 billion

1. *Company History: The first automobile 1885-1886*, MERCEDES-BENZ GROUP, <https://group.mercedes-benz.com/company/tradition/company-history/1885-1886.html> (last visited Aug. 15, 2023).

2. Amy Norcross, *George Selden Granted 1st US Patent for An Automobile, November 5, 1895*, EDN (Nov. 5, 2019), <https://www.edn.com/george-selden-granted-1st-us-patent-for-an-automobile-november-5-1895/>.

in 2021 on research & development³ and filing hundreds of thousands of patent applications annually.⁴

Patent litigation and patent pools are also not new in the car industry. In 1899, Selden sold his patent to the Electric Vehicle Company (EVC) and EVC sued Winton Motor Carriage Company for patent infringement.⁵ After settling the dispute, a number of car manufacturers, including Winton, Packard, and Cadillac, joined with Selden and EVC to form the Association of Licensed Automobile Manufacturers (ALAM).⁶ In 1903, ALAM sued Ford Motor Company (after Henry Ford was denied membership in ALAM) for infringement.⁷ An eight-year legal battle ensued, with ALAM and Selden prevailing, although Ford ultimately won on appeal in 1911, one year prior to the expiration of Selden's patent.⁸

What is a new—or at least a more recent—development in the automobile industry is the ubiquity of technology covered by standards and the prevalence of standard essential patents (SEPs).⁹ As connected or smart cars become the norm, the industry's incorporation of telecommunication and Internet of Things (IoT) standards has greatly increased. Additionally, these new cars have spurred more standardization in areas of vehicle-specific technology. The industry's lack of familiarity with SEP licensing, as well as the complexities associated with the industry, however, are raising concerns about how well the automotive industry will be able to adapt to this future.¹⁰ While concerns about SEPs in the automotive industry are being raised in trade journals and academic reports, what has not yet been deeply explored is whether more dangerous issues associated with SEPs—such as predatory infringement—are likely to also wreak havoc in the automotive industry. This Article suggests that not only is the automotive industry likely to also experience predatory infringement, but that the history and complexities of the industry may even be more conducive for its occurrence.

3. *Global Automotive Research and Development Spending Between 2020 and 2021, With a Forecast for 2022*, STATISTA, <https://www.statista.com/statistics/1345699/global-automotive-research-and-development-spending/> (last visited Aug. 15, 2023).

4. *Revealed: The Car Brands Driving Automotive Innovation*, BRISTOL STREET MOTORS, <https://www.bristolstreet.co.uk/news/revealed-the-car-brands-driving-automotive-innovation/> (last visited Aug. 15, 2023).

5. See Norcross, *supra* note 2.

6. See *id.*

7. See *id.*

8. See *id.*

9. Manveen Singh & Vishwas H. Devaiah, *SEP Licensing In the Automotive Industry: Shifting Gears Too Quickly?*, 18 J. INTELL. PROP. L. & PRAC. 122, 123 (2023).

10. See *id.*

This Article proceeds as follows: Part II provides background information about the automotive industry, including a discussion of its structure, the growing prevalence of SEPs in the industry, and SEP litigation that is already occurring in this space; Part III provides a brief explanation of predatory infringement and why it is a particular problem for industries where SEPs are prevalent; and Part IV explains how the complex structure and history of the automotive industry create conditions where predatory infringement is likely to flourish.

II. THE AUTOMOTIVE INDUSTRY

The automotive industry, as mentioned above, has always been a field of great innovation. From the invention of the gas-powered engine to today's hybrid and fully-electric vehicles, from seatbelts to anti-lock brakes to backup cameras, and all of the many innovations that have arisen over the last 150 years, the automotive field embodies incredible creativity. One of the more recent transformative areas in this industry is smart or connected cars. Connected cars trace back to the mid-1990s, when General Motors and Motorola developed the OnStar telematics system used first in Cadillacs, allowing drivers to contact emergency services in case of accident.¹¹ Around the same time, BMW introduced BMW Assist telematics, allowing a driver to make emergency calls and obtain traffic information.¹² In 2004, BMW introduced a smart telematics system, allowing a driver to access weather, news, and entertainment services in addition to emergency help and traffic . . . and things went gangbusters from there.¹³ In 2013, there were 23 million connected cars around the world; by 2021, that number grew to 237 million connected cars.¹⁴

Part of why the automotive industry has been able to be so innovative is related to its structure. Another portion of that creativity can be attributed to the automotive industry's ability to leverage existing technology and adapt it for the best purposes in cars. Whether it be innovation within the industry or incorporation of existing non-automotive technology into vehicles, patents play a role in the mix. This Part II first explains in Section II.A the structure of the automotive industry and how it supports innovation, and then in Section

11. Igor Nikolic, *Injunctions Facilitate Patent Licensing Deals: Evidence from the Automotive Sector*, COMPETITION POL'Y INT'L (June 20, 2022), <https://www.competitionpolicyinternational.com/injunctions-facilitate-patent-licensing-deals-evidence-from-the-automotive-sector/>.

12. *See id.*

13. *See id.*

14. *See id.*

II.B describes how SEPs have become ubiquitous in the industry, both as patents brought in from other technology areas as well as patents deriving from innovation within the industry. The presence of patents, and especially SEPs, means that there is a likelihood of patent litigation. The final Section II.C of this Part II looks at some recent SEP cases in the automotive industry.

A. STRUCTURE OF THE AUTOMOTIVE INDUSTRY

Automobiles—when compared to other highly innovative consumer products such as telecommunications—are large, expensive, and generally slow to evolve.¹⁵ Industry leadership shows little turnover, with the same five carmakers holding the top 5 in 1999 as in 2013, and these five firms holding a collective global market share of over 50%.¹⁶ Consumer loyalty, or the percentage of car owners who choose to buy a new car from the same brand, is also fairly high.¹⁷ The central product and essential function of the industry is transporting people and goods in cars, and the dominant design of cars has not changed in decades.¹⁸ Despite that, there is significant technological innovation with respect to secondary aspects, including passenger comfort, safety, fuel efficiency, and environmental impact.¹⁹ Some of this innovation is driven by consumer demand, while other aspects are imposed via governmental regulation, such as the mandate for zero-emission cars issued first by the California Air Resources Board.²⁰ Because the car itself has changed little, industry leaders are entrenched, and consumers are highly brand loyal, automotive manufacturers distinguish themselves and attract consumers through innovation in these secondary features—particularly those that consumers desire.

The manufacturing structure of the industry also supports innovation. The automotive sector is comprised of a long and complicated supply chain, making up multiple tiers.²¹ Original equipment manufacturers (OEMs), or vehicle manufacturers, represent the end product, supported by a pyramid structure consisting of three tiers of suppliers.²² Tier-1 suppliers provide

15. Florian Metzler, *Tracing Competencies and Product Requirements in Technology Space: A New Perspective on Firm & Industry Evolution* 30 (Massachusetts Institute of Technology, Working Paper, 2020), <http://papers.ssrn.com/abstract=3730195>.

16. *See id.*

17. *See, e.g., Brand Loyalty Strong among New-Vehicle Owners, J.D. Power Finds*, Press Release, J.D. POWER (Sept. 26, 2022), <https://www.jdpower.com/business/press-releases/2022-us-automotive-brand-loyalty-study>.

18. *See Metzler, supra* note 15, at 30.

19. *See id.*

20. *See id.* at 31.

21. Singh & Devaiah, *supra* note 9, at 3.

22. *See id.*

systems or parts directly to OEMs and specialize in manufacturing hardware that supports the specifications of the OEMs.²³ Tier-2 comprises numerous component suppliers and manufacturers that Tier-1 companies use to build the hardware.²⁴ Tier-3 companies include suppliers of things like plastics, metals, or aluminum, providing raw materials to Tier-2 and Tier-1 companies.²⁵

This disintegrated model opens up multiple opportunities for innovation. For example, some innovation occurs as a matter of collaboration between the OEM and a skilled supplier.²⁶ Benefits of this type of collaborative innovation include early problem-solving, greater focus on manufacturability, improved product performance, and reduced production costs.²⁷ Other innovation happens as a matter of competition amongst suppliers to win more business from OEMs, either by (1) being able to produce the components more quickly or cheaply and thus offer a lower price, or (2) by producing a component that is of better quality or provides additional features that consumers desire, allowing the OEM to pass these benefits on to the consumer.

B. SEPS IN THE AUTOMOTIVE INDUSTRY

While the automotive industry has always been driving technology forward, the more recent inclusion of autonomous driving and Internet of Things (IoT) technologies in cars has ramped up innovation in this sector. This innovation is occurring not within one particular car company or component supplier, nor is it even contained within only the automotive industry. Instead, much of this new innovation is happening in standards development organizations (SDOs). For example, to support autonomous driving, a car must be equipped with the capability to communicate with systems both within the car and without.²⁸ Some of these functions rely on existing communication standards such as 4G/5G, WiFi, Bluetooth, and near-field communication (NFC).²⁹ In addition to incorporating standards from outside of the automotive industry, these new technologies are creating opportunities for standards development within the industry. For example, vehicle-to-everything communication (V2X) is a specific technology for vehicle

23. *See id.*

24. *See id.*

25. *See id.*

26. Benedikt Langner & Victor P. Seidel, *Collaborative Concept Development Using Supplier Competitions: Insights from the Automotive Industry*, 26 J. ENG. TECH. MGMT. 1, 1 (2009).

27. *See id.* at 1.

28. Shaobin Zhu & Bo Tang, *Road to the Future: SEP Licensing and Litigation In the Automotive Field*, PAT. LAW. 7 (JULY/AUGUST 2022), <https://www.morganlewis.com/-/media/files/publication/outside-publication/article/2022/road-to-the-future-sep-licensing-and-litigation-in-the-automotive-field-the-patent-lawyer-magazine.pdf>.

29. *See id.*

connectivity and has been standardized by IEEE 802.11p and 3GPP for WLAN and cellular V2X, respectively.³⁰

1. *SEPs, FRAND, and Licensing*

With the increase in standardized technologies being incorporated into cars, SEPs are also now ubiquitous in the automotive industry. Companies that participate in standards development often own patents that cover one or more aspects of the technology incorporated into a standard. To ensure that patented technology incorporated into a standard is going to be available to anyone who wants to practice the standardized technology, SDOs often have intellectual property right (IPR) policies.³¹ One common IPR policy requires SDO participants who own SEPs to agree to license those patents on fair, reasonable, and non-discriminatory (FRAND) terms.³²

The specific obligations related to the FRAND commitment varies by SDO, but generally these IPR policies do not provide formal definitions of what is “fair,” “reasonable,” or “non-discriminatory.”³³ The policies also do not specify provisions of the patent licensing agreements, formulas regarding patent license royalty calculations, price ceilings or floors, or information regarding profit sharing; instead, FRAND obligations have been criticized as incomplete contracts by some.³⁴ However, what the FRAND commitments do facilitate is negotiation between the SEP owner and firms that want to implement the standard; FRAND supports a variety of licensing agreements, with the only exceptions being exclusive licensing or refusing to deal with potential licensees.³⁵

This emphasis on open negotiation, unfortunately, leads to disputes about whether what the SEP owner has offered to a potential implementer is truly FRAND. Of course, there are always disputes about the agreed-to licensing rate; not surprisingly, SEP owners would often like to be paid more and implementers would like to pay less.

However, in fields with products comprised of multiple patented components (like the automotive industry), a common debate is between

30. *See id.*

31. *See e.g.*, Kristen Osenga, “Efficient” Infringement and Other Lies, 52 SETON HALL L. REV. 1085, 1099 (2022).

32. *See id.*

33. Daniel F. Spulber, *Licensing Standard Essential Patents with FRAND Commitments: Preparing for 5G Mobility Telecommunications*, 18 COLO. TECH. L.J. 79, 91 (2020).

34. *See id.* at 92.

35. *See id.*

“license to all” and “access to all.”³⁶ “License to all” means that the SEP owner must agree to license to any party who is willing to pay the license fee, regardless of where in the supply chain that party is situated, whereas “access to all” licensing permits an SEP owner to determine where in the supply chain they will grant licenses, but permit the licensee to provide access to its suppliers. Proponents of a “license to all” approach believe that the value of standardized technology is best reflected at the component level and is generally preferred by implementers who prefer licensing at what is known as the smallest saleable patent practicing unit (SSPPU).³⁷ “Access to all,” instead, stems from the perspective that SEP owners should be able to choose the level of the supply chain at which they prefer to license.³⁸ SEP owners often prefer to license at the OEM or end-user level, as it generally decreases transaction costs in the form of negotiation, monitoring, and compliance.³⁹ The question is whether SEP owners under a FRAND obligation must grant licenses to any and all requesting entities in a supply chain, or whether they have the option to license only to a certain level of a supply chain so long as all other entities in the chain can access the patented technology.⁴⁰

In the telecommunications sector, licenses are usually granted to OEMs and the use of SEPs by component suppliers is often consented to by SEP owners, without identifying individual suppliers.⁴¹ Historically, the automotive industry has not followed the same licensing model.⁴² Patent licensing in the automotive industry has typically been done at the component level, “a practice that has evolved into an implied rule over several decades.”⁴³ This historical practice has also resulted in several licensing provisions unique to the automotive industry.⁴⁴ Some of these provisions include unilateral rights of termination for OEMs, requirements for the component suppliers to continue

36. See generally Anne Layne-Farrar & Richard J. Stark, *License to All or Access to All? A Law & Economics Assessment of Standard Development Organizations' Licensing Rules*, 88 GEO. WASH. L. REV. 1307 (2020) (discussing the legal and economic debates between these licensing models); Zhu & Tang, *supra* note 28 (explaining the “paradigm shift” in moving between the licensing models).

37. See Layne-Farrar & Stark, *supra* note 36, at 1314–15.

38. See *id.* at 1324 (citing Damien Geradin, *Access for All v. License to All: A Response to Richard Vary*, (2020), <https://ssrn.com/abstract=3587319>).

39. Geradin, *supra* note 38, at 5.

40. See *id.*

41. See Singh & Devaiah, *supra* note 9, at 4.

42. See *id.* at 5.

43. See *id.*

44. See, e.g., Daniel A. Crane, Kyle D. Logue & Bruce C. Pilz, *A Survey of Legal Issues Arising from the Deployment of Autonomous and Connected Vehicles*, 23 MICH. TELECOMM. TECH. L. REV. 191, 229–30 (2017).

to supply service parts, favorable IP rights for the OEM in the case of supplier failure, and warranties with significant remedies in favor of the OEM.⁴⁵ Moreover, supply contracts also include indemnification clauses for litigation costs accrued by the OEM in cases of injury claims, as well as assertions of intellectual property infringement.⁴⁶ Unfortunately, this historical practice in the automotive industry is crashing into the present, especially as SEPs from outside the automotive industry, such as those originating in telecommunications, are increasingly incorporated via technology in today's cars.

2. SEPs and Patent Pools

Times are changing in the automotive industry. Not only is the industry adapting and integrating standardized technology from other fields into cars, but automotive companies are also playing active roles in standardizing connected vehicle technology. In doing so, automotive companies are no longer simply consumers of SEPs, but are also SEP owners.⁴⁷ Whether in the role of SEP consumer or SEP owner, the automotive industry is realizing the benefits associated with patent pools.

Patent pools are formed when multiple patent owners combine their patents and allow for group of patents to be licensed to third parties via a single package.⁴⁸ This allows for “one-stop shopping” for implementers while accepting and distributing royalties to SEP owners; on both sides, transaction costs are lowered.⁴⁹ Specifically, patent pools can reduce search costs, negotiation costs, and valuation issues, as well as reducing the risk of patent holdout.⁵⁰ As one study notes, “[patent pools] are mind-blowingly efficient at conducting high volumes of patent licensing.”⁵¹

The most notable patent pool in automotive space is Avanci. Avanci was founded in 2016 by Kasim Alfalahi (former Chief IP Officer at Ericsson, Inc.), who wanted to resolve the “unpredictability and uncertainty” surrounding licensing.⁵² Over fifty SEP owners have signed up and an estimated 80-85

45. *See id.*

46. *See* Omri Ben-Shahar & James J. White, *Boilerplate & Economic Power in Auto Manufacturing Contracts*, 104 MICH. L. REV. 953, 969 (2006).

47. *See* Zhu & Tang, *supra* note 28, at 8.

48. *See, e.g.*, Robert P. Merges & Michael Mattioli, *Measuring the Costs and Benefits of Patent Pools*, 78 OHIO ST. L.J. 281, 285 (2017).

49. *See id.* at 285–86.

50. *See id.* at 296–97.

51. *See id.* at 288.

52. *See, e.g.*, Matthew Bultman, *Avanci is Turning Automaker's Patent Licensing on Its Head*, BLOOMBERG L. (July 5, 2022), <https://news.bloomberglaw.com/ip-law/avanci-is-turning-automakers-patent-licensing-on-its-head>.

percent of implementers in the auto industry have taken an Avanci license, which includes wireless standards relevant to the automotive industry, such as eCall, 3G, and 4G.⁵³ Avanci, which limits its licenses to OEMs, offers a fixed royalty rate, \$15 per connected car, which remains the same regardless of the addition of new licensors and SEPs.⁵⁴ In April 2023, Avanci added Samsung Electronics to its list of patent owners and claims to have licensed to more than eighty brands of automobiles.⁵⁵

As innovation persists, so does the increased role for patent pools in the automotive industry. Avanci requested a Business Review Letter (BRL) from the Antitrust Division of the Department of Justice and, in July 2020, a positive BRL was issued for Avanci's proposed platform to license 5G technology in automobiles.⁵⁶ Concluding that Avanci's platform was unlikely to harm competition,⁵⁷ Assistant Attorney General (AAG) Delrahim wrote:

In sum, the proposed 5G Platform has the potential to yield efficiencies by reducing transaction costs and streamlining licensing for connected vehicles. . . . Together these efficiencies may allow cellular standards-essential patent owners and vehicle manufacturers to focus resources elsewhere, such as investment in further research and development in emerging 5G technologies and applications.⁵⁸

In addition to highlighting the potential benefits of Avanci's proposed platform, the letter also highlighted: (1) the evaluation system to ensure essentiality; (2) the ability to license patents outside of the patent pool; and (3) the ability for licensees to challenge the validity, enforceability, and essentiality of the patents within the pool as not anticompetitive.⁵⁹

Despite the thorough analysis performed by the DOJ in providing the positive BRL, the Avanci 5G patent pool remains a topic of great controversy. In October 2022, a letter was submitted by a group of former government enforcement officials, professors, and public interest advocates, urging AAG Jonathan Kanter to reconsider the July 2020 BRL.⁶⁰ The letter questioned the

53. See Zhu & Tang, *supra* note 28, at 8.

54. Nikolic, *supra* note 11.

55. *Avanci Welcomes Samsung Electronics*, AVANCI (Apr. 18, 2023), <https://www.avanci.com/2023/04/18/avanci-welcomes-samsung-electronics/>.

56. Letter from Makan Delrahim, U.S. Dep't Just., Antitrust Division, to Mark H. Hamer (July 28, 2020), <https://www.justice.gov/atr/page/file/1298626/download>.

57. See *id.* at 2.

58. See *id.* at 12.

59. See *generally id.*

60. Letter to AAG Jonathan Kanter (Oct. 17, 2022), <https://static1.squarespace.com/static/60e5457fb89be21d705fa914/t/634d9bb669c56b29d6d58e7f/1666030518708/Letter+to+AAG+Kanter+regarding+Avanci+10.17.2022.pdf>.

data supporting the BRL and claimed that the patent pool was an open invitation to bad behavior by patent trolls and was compounding supply chain issues due to patent holdup.⁶¹ A counter letter was filed by a group of former judges and government officials, legal academics and economists, requesting instead that the 2020 BRL be maintained.⁶² The counter letter highlighted a lack of evidence with respect to patent holdup, the importance of injunctive relief for innovation, a variety of mischaracterizations in the October 2022 letter, and the wide-range of global court opinions that support a lack of holdup and the availability of injunctive relief for SEP infringement.⁶³

Some commentators have claimed that, given the wide acceptance of Avanci's patent pool for 2G/3G/4G and the positive BRL regarding the 5G licensing platform, the issues of licensing in the automotive industry are settled and of little interest. However, the recent letter seeking reconsideration of the BRL and the spike of litigation surrounding patent licensing in the automotive industry tell a different story: patents and licensing of those patents in the automotive industry remain a high-octane topic.

C. SEP LITIGATION IN THE AUTOMOTIVE INDUSTRY

While the Avanci patent pool and the increasing prevalence of SEPs in the automotive industry ushered in a new era of technology available in cars, it also creates a clash between the industry's past and future.⁶⁴ Specifically, SEP owners and the Avanci patent pool are providing "access to all" licenses and are opting to license SEPs at the OEM or end-user level, in conflict with the automotive industry's historical practice of licensing to the myriad of component manufacturers who form the supply chains. Not only are car manufacturers not used to paying SEP licensing royalties,⁶⁵ but component suppliers are frustrated that they cannot obtain licenses as they always have. This clash has already resulted in a spate of global litigation.

One case involving SEP licensing in the automotive industry is the patent litigation case between Nokia and Daimler in Germany.⁶⁶ Nokia sued Daimler for patent infringement of SEPs, and Daimler responded by claiming that

61. *See id.*

62. Letter to AAG Jonathan Kanter (Nov. 30, 2022), <https://ipwatchdog.com/wp-content/uploads/2022/11/Letter-to-AAG-Kanter-re-SEPs-and-Patent-Pools-10.30.22-1.pdf>.

63. *See id.*

64. The clashes that appear in the litigations discussed are also highlighted in letter and counter letter to the DOJ from 2022, regarding the Avanci 5G licensing platform BRL.

65. *See* Zhu & Tang, *supra* note 28, at 8.

66. *See id.* at 9; *Nokia v Daimler*, Higher Regional Court (Oberlandesgericht) of Karlsruhe, C4IP (Feb. 12, 2021), <https://caselaw.4ipcouncil.com/german-court-decisions/olg-karlsruhe/nokia-v-daimler> [hereinafter *Nokia v. Daimler*, C4IP].

Nokia's licensing activity was not FRAND-compliant.⁶⁷ Specifically, Daimler argued that it was the suppliers that should be allowed to take licenses from Avanci and it was anticompetitive to refuse to license to suppliers.⁶⁸ Daimler also argued the rates being charged were too high because the rate should be based on the price of component parts—here, telematic control units (TCUs)—and not cars.⁶⁹ In 2020, German courts ruled separately in favor of Nokia, finding infringement of two Nokia SEPs and issuing Germany-wide injunctions on sales of Mercedes cars.⁷⁰ The Mannheim Regional Court held that an SEP owner under patent law is free to choose the level of supply chain at which it seeks to offer licenses and the selection of licensing to OEMs is not anticompetitive, while the Munich Regional Court determined that a FRAND commitment requires the SEP owner to license, but does not commit the SEP owner to license at any particular level of the supply chain.⁷¹ If a license granted at the end-user level of the supply chain includes “have-made rights” then these licenses are not anticompetitive.⁷² These courts also held that the royalty rates sought for use of the SEPs were not inappropriate because connectivity allows the OEMs to generate income from additional services, not reflected in the price of the components themselves.⁷³ In each court, Daimler was found to be an unwilling licensee per *Huawei v. ZTE* and an injunction was issued. In June 2021, Nokia and Daimler announced a settlement, including Daimler's licensing of Nokia's portfolio of SEPs.⁷⁴

Another case occurred in the United States, where Continental, an automotive parts supplier, sued Avanci, arguing that Avanci's refusal to grant a license to Continental was a Sherman Act violation.⁷⁵ This effort was quashed in June 2022, when the U.S. Court of Appeals for the Fifth Circuit affirmed the district court's ruling, dismissing Continental's suit for failure to state a claim.⁷⁶ Continental sought a license from Avanci, but was rejected because Avanci is authorized to only grant licenses to OEMs, not suppliers.⁷⁷

67. See *Nokia v. Daimler*, C4IP, *supra* note 66.

68. *Id.*

69. *Id.*

70. *Id.*

71. *Id.*

72. *Id.*

73. *Id.*

74. *Id.*

75. See *Zhu & Tang*, *supra* note 28, at 9.

76. *Cont'l Auto. Sys. v. Avanci, L.L.C.*, No. 20-11032, 2022 U.S. App. LEXIS 17079 (5th Cir. June 21, 2022) (*affirming* *Cont'l Auto. Sys., Inc. v. Avanci, L.L.C.*, 485 F. Supp. 3d 712 (N.D. Tex. 2020)).

77. *Cont'l Auto. Sys., Inc. v. Avanci, L.L.C.*, 485 F. Supp. 3d 712, 722–23 (N.D. Tex. 2020).

Continental argued that this was a breach and that the refusal to license at the supplier level would result in the possibility of extracting non-FRAND rates from OEMs, allowing the manufacturers to pass the costs on to the suppliers.⁷⁸ The court found that Continental had failed to show that OEMs were being forced to take on non-FRAND licenses or that costs were being passed to Continental and other suppliers.⁷⁹ Continental also argued that Avanci and the SEP owners had breached FRAND for not offering a license at the supplier level.⁸⁰ The court had to consider whether the suppliers, like Continental, were intended third-party beneficiaries of the agreement between the SDO and the SEP owners.⁸¹ Continental, unlike implementers in other cases, was not intended to benefit from the agreement between the SDO and the SEP owner and thus could not argue for a FRAND breach.

Suits against other automotive giants like Tesla and Ford have followed, cementing this time as what some are calling the “automotive patent wars.”⁸² Tesla was sued for patent infringement in Germany, Japan, and the US.⁸³ License negotiations were unsuccessful prior to litigation, but later all cases were withdrawn, implying Tesla likely took a license.⁸⁴ Seven SEP owners sued Ford in the US and Germany, where the Munich Regional Court found Ford to be an unwilling licensee and granted an injunction in 2022.⁸⁵ Following the decision, Ford took a license from Avanci.⁸⁶ These cases and others, where large automotive companies—with significant resources and ample legal savvy—risk the expenses of litigation (and potentially the threat of injunctive relief) rather than taking a license, illustrate that the mindset of big auto has not caught up with the reality of today’s technological ecosystem.

III. PREDATORY INFRINGEMENT

Predatory infringement is a fairly recent phenomenon that has arisen because injunctive relief is not always granted in cases of patent infringement. While some characterize the decision to “infringe first, pay later,” as efficient infringement, the decision to initially infringe, rather than license, patents is

78. *Id.*

79. *Id.* at 729.

80. *Id.*

81. *Id.* at 730–31.

82. *See, e.g.,* Chuck Tannert, *Will the Patent Wars Kill the Self-Driving Cars?*, POPULAR MECHANICS (July 26, 2017), <https://www.popularmechanics.com/cars/hybrid-electric/news/a27480/patent-wars-self-driving-car/>.

83. *See* Nikolic, *supra* note 11.

84. *Id.*

85. *Id.*

86. *Id.*

better characterized as predatory.⁸⁷ Relevant to this Article, injunctive relief is often denied in cases involving SEPs, especially in the United States. This Part III explains in Section III.A the concept of injunctions in patent infringement cases more generally and how the 2006 *eBay* case changed the landscape of injunctive relief, followed by a discussion of predatory infringement in Section III.B.

A. INJUNCTIONS IN PATENT INFRINGEMENT CASES

Patents provide exclusive rights, or the ability to exclude others from using the subject matter covered by the patent.⁸⁸ To attain that exclusive right, the modern Patent Act provides that courts “may grant injunctions in accordance with the principles of equity to prevent the violation of any right secured by patent.”⁸⁹ Courts have affirmed this, with the Supreme Court recognizing “the essence of a patent grant is the right to exclude . . .”⁹⁰ and the Federal Circuit, which hears appeals in patent cases, similarly noting that “the right to exclude recognized in a patent is . . . the essence of the concept of property.”⁹¹

In general, if a patent is found to be infringed, an injunction is issued to prevent continued infringement—and before 2006, this relief was nearly automatic.⁹² By stopping infringement, an injunction restores the exclusive right of the patent. It also serves as a strong deterrent to infringement by others, as it is expensive to begin manufacturing and distributing a product that later is enjoined by the court.⁹³ This deterrent serves to incentivize license negotiation during a number of steps prior to being enjoined by a court.⁹⁴ To avoid claims of infringement in the first instance, an implementer who feared a possible future court order enjoining its behavior would often engage in pre-infringement negotiations in an attempt to license the technology before

87. See Osenga, *supra* note 31, at 1103.

88. 35 U.S.C. § 261 (“[P]atents shall have the attributes of personal property.”); 35 U.S.C. 154(a)(1) (“Every patent shall contain . . . a grant to the patentee, his heirs or assigns, *the right to exclude others* from making, using, offering for sale, or selling the invention throughout the United States or importing the invention into the United States.”) (emphasis added); *In re Etter*, 756 F.2d 852, 859 (Fed. Cir. 1985) (“The essence of all property is the right to exclude, and the patent property right is certainly not inconsequential.”).

89. 35 U.S.C. § 283.

90. *Dawson Chem. Co. v. Rohm & Hass Co.*, 448 U.S. 176, 215 (1980).

91. *Connell v. Sears, Roebuck & Co.*, 722 F.2d 1542, 1548 (Fed. Cir. 1983).

92. See Shyamkrishna Balganes, *Demystifying the Right to Exclude: Of Property, Inviolability, and Automatic Injunctions*, 31 HARV. J.L. & PUB. POL’Y 593, 650–51 (2008) (discussing the Federal Circuit’s rule of nearly automatically granting injunctive relief); Colleen V. Chien & Mark A. Lemley, *Patent Holdup, the ITC, and the Public Interest*, 98 CORNELL L. REV. 1, 16 fig. 3 (2012) (illustrating a grant rate of greater than 90% for the period before the *eBay* decision).

93. See Osenga, *supra* note 31, at 1091–92.

94. See *id.*

embarking on potentially infringing behavior.⁹⁵ Even if the accused infringer did not obtain a license ahead of time, when facing a lawsuit in which injunctive relief is the likely outcome if infringement is found, the accused infringer and the patent owner may be more likely to engage in pre-lawsuit (or at least pre-decision) settlement negotiations.⁹⁶ Finally, even if the lawsuit drew to a conclusion, these regularly-granted injunctions would serve as a place from which post-lawsuit negotiations would begin.

In 2006, the Supreme Court decided the *eBay Inc. v. MercExchange LLC* case,⁹⁷ which ended what had been a nearly-automatic issuance of injunctive relief for patent infringement. In this case, the Court announced a four-factor test that courts should use when deciding whether to grant a permanent injunction.⁹⁸ The four-factor test requires the party seeking a permanent injunction to demonstrate “(1) that it has suffered an irreparable injury; (2) that remedies available at law, such as monetary damages, are inadequate to compensate for that injury; (3) that, considering the balance of hardships between the plaintiff and defendant, a remedy in equity is warranted; and (4) that the public interest would not be disserved by a permanent injunction.”⁹⁹ These factors are balanced and considered on the merits of each particular case.¹⁰⁰ The Supreme Court took issue with categorical grants or denials of injunctive relief, noting that both are inapposite for this equitable doctrine.¹⁰¹

B. PREDATORY INFRINGEMENT IN THE ABSENCE OF INJUNCTIONS

As lower courts began to interpret the Supreme Court’s *eBay* decision as not requiring a grant of permanent injunction upon a finding of patent infringement, the phenomenon of predatory infringement took hold. Predatory infringement is the intentional, and perhaps even rational, choice to infringe a patent rather than take a license to use the patented technology, based on the calculated risk that even if found to be infringing, an injunction will not be issued against the predatory infringer.¹⁰² It makes much more sense for a potential infringer to go ahead and infringe now—and pay later.¹⁰³ At worst, the infringer will simply have to pay damages for past infringement and

95. Cf. Karen E. Sandrik, *Reframing Patent Remedies*, 67 U. MIAMI L. REV. 95, 98 (2012).

96. John M. Golden, *Litigation in the Middle: The Context of Patent Infringement Injunctions*, 92 TEX. L. REV. 2075, 2078–79 (2014) (explaining how injunctive relief affects the expected gains and losses from litigation and may alter settlement decisions).

97. See generally *eBay Inc. v. MercExchange, LLC*, 547 U.S. 388 (2006).

98. *Id.* at 391.

99. *Id.*

100. *Id.*

101. *Id.* at 393–94.

102. See Osenga, *supra* note 31, at 1091.

103. See *id.*

an ongoing royalty for continued, future infringement.¹⁰⁴ Better still, the patent owner may never bring suit, meaning that the infringer pays no royalties, or the patent owner could prevail, but the royalty rate determined by the court for past and ongoing infringement could be substantially lower than the rate that the patent owner was offering at the outset, saving the infringer money.¹⁰⁵

Predatory infringement is only a rational choice where injunctive relief is largely unavailable to a patent owner. One place where courts have been reluctant to enjoin patent infringement is where the infringed patent is an SEP.¹⁰⁶ As described above, SEP owners have often committed to license their patents on FRAND terms where they are unable to decline to provide access to the patented technology.¹⁰⁷ Injunctive relief is denied, under the *eBay* factors, because the SEP owner “is, by definition, willing to license rather than exclude, and benefits from the widespread adoption of its technology resulting from standardization.”¹⁰⁸ Where injunctions are unlikely, predatory infringement is a viable option for implementers.

Not only are courts persuaded into declining injunctive relief due to the *eBay* decision, but they are also reacting to well-worn trope of patent holdout, or the alleged behavior of SEP owners using the threat of exclusion to coerce a potential licensee to accept “excessively large royalties.”¹⁰⁹ Courts, by declining to enjoin infringers have removed the threat of exclusion, and therefore, should eliminate the concern of patent holdup. However, what is actually happening is patent holdout, a phenomenon wherein “an implementer refuses to negotiate in good faith . . . and instead forces the innovator to either undertake significant litigation costs and time delays to extract a licensing payment through a court order[.]”¹¹⁰ In an unpublished study, Gupta & Petrovic looked at cases involving infringement of SEPs where the court determined that an implementer had engaged in patent holdout, was an

104. Joe Nocera, *Opinion, The Patent Troll Smokescreen*, N.Y. TIMES (Oct. 23, 2015), <https://www.nytimes.com/2015/10/24/opinion/the-patent-troll-smokescreen.html> (“Because the courts have largely robbed small inventors of their ability to seek an injunction . . . the worst that can happen is that the infringer will have to pay some money.”).

105. See Adam Mossoff, *Institutional Design in Patent Law: Private Property Rights or Regulatory Entitlements*, 92 S. CAL. L. REV. 921, 938 (2019).

106. See Osenga, *supra* note 31, at 1098–99.

107. See *supra* Section I.B.1.

108. Thomas F. Cotter, *Reflections on Holdup and Royalty Stacking, Part 1*, COMPAR. PAT. REMEDIES (June 11, 2014, 4:20 AM), <http://comparativepatentremedies.blogspot.com/2014/06/reflections-on-holdup-and-royalty.html>.

109. See, e.g., Richard A. Epstein & Kayvan B. Noroozi, *Why Incentives for “Patent Holdout” Threaten to Dismantle FRAND and Why It Matters*, 32 BERKELEY TECH L.J. 1381, 1384 (2017).

110. See *id.* at 1384

unwilling licensee, or acted in bad faith.¹¹¹ Of the 58 unique cases of patent holdout in their study, the automotive company Daimler was a repeat player.¹¹²

Other jurisdictions are not bound by the *eBay* decision and have developed frameworks in which an SEP owner may, under certain circumstances, obtain injunctive relief. One example is the 2015 European Court of Justice (ECJ) case in *Huawei v. ZTE*.¹¹³ The dispute occurred in Germany, where injunctions are automatically granted upon a finding of patent infringement.¹¹⁴ Because Germany's automatic injunction conflicted with previous decisions of the European Commission, clarification was sought from the ECJ.¹¹⁵ The ECJ concluded that an SEP owner bound by a FRAND commitment can, indeed, seek injunctive relief, but that owner's refusal to grant a license may constitute abuse.¹¹⁶ More helpfully, the ECJ provided a set of actions for both SEP owners and implementers to follow to be compliant with European competition law. The SEP owner must alert the alleged infringer and specify how the patent has been infringed and present a written offer to license including how the royalty rates were calculated.¹¹⁷ The implementer, on the other hand, must "diligently respond" to this offer "in good faith" by providing a counter-offer that is also FRAND.¹¹⁸ If the implementer fails to act accordingly or engages in "delaying tactics", the SEP owner may seek and obtain injunctive relief.¹¹⁹ Unfortunately, the United States has not adopted this or any similar framework and injunctive relief is still unlikely in cases of SEP infringement.

IV. THE EASY ROAD FOR PREDATORY INFRINGEMENT IN THE AUTOMOTIVE INDUSTRY

The automotive industry is already a battleground for patent litigation involving SEPs, as described in Section II.C. above, but Part IV of this Article

111. See Kirti Gupta & Urska Petrovcic, *Evidence of Systematic "Patent Holdout"* (unpublished manuscript), at 5 (on file with author).

112. See *id.* at 8.

113. Case C-170/13, *Huawei Technologies Co. v. ZTE Corp.* PP 52-53 (July 16, 2015), <http://curia.europa.eu/juris/document/document.jsf?text=&docid=165911&pageIndex=0&doclang=EN&mode=lst&dir=&occ=first&part=1&cid=603775> [hereinafter *Huawei v. ZTE*].

114. Anne Layne-Farrar & Koren Ervin Wong, *Methodologies for calculating FRAND damages: an economic and comparative analysis of the case law from China, the European Union, India, and the United States*, 8 JINDAL GLOBAL L. REV. 127, 133 (2017).

115. See *id.*

116. See *Huawei v. ZTE*, *supra* note 113, at 52–53.

117. See *id.* at 71.

118. See *id.* at 66–67.

119. See *id.* at 55.

suggests that the field is also ripe for predatory infringement. As discussed above, many automotive manufacturers have been reluctant to take licenses from SEP owners or patent pools like Avanci; in fact, some of this reluctance persisted until European courts issued injunctive relief. But in the United States, where injunctions are still routinely denied for infringement of SEPs, the conditions that make predatory infringement attractive are still present. In addition to the low likelihood of being enjoined, there are at least two additional reasons why the automotive industry is an excellent vehicle for predatory infringement: the automotive industry's relative recent entry into the SEP space and the historical background of licensing in this area.

A. RELATIVE INFANCY IN THE SEP SPACE

One reason why predatory infringement is likely in the automotive industry is its relative infancy in the SEP space. As noted above, while patents and even patent pools are longstanding features of the automotive field, the prevalence of standardized technology from other areas as well as the automotive field itself are of more recent vintage. Most industries when faced with a significant change suffer some growing pains, but the combination of this newness with a flip-flop in how patent licensing occurs in this industry, see below, is inevitably going to create a small amount of chaos initially. In this chaos, it is possible for predatory infringement to occur, and even go unnoticed—at least until the industry sorts itself out.

In some respects, once the automotive industry matures into this new space, it may be better able to address predatory infringement than other industries. Particularly at the OEM or end-user level, the industry is largely composed of longstanding, large companies; there are few upstarts in the automotive world, and thus the factors of reputation and repeat-player dynamics are relevant. Additionally, the automotive industry is perceived with less suspicion than some other industries at this current moment. The same microscopic scrutiny being applied to, for example, big tech companies, seems to have passed big auto by—at least for now. For this reason, as the automotive industry matures in the SEP space, they may have more success in lobbying for legal changes to address the unavailability of injunctive relief and widespread patent holdout in ways that industries that have been facing the same problems have not.

On the other hand, being late to the game may be an obstacle as the automotive industry settles into its SEP-prevalent future. By not being first on the scene, and instead being a relative newcomer behind the telecom industry—where patent wars have already been fought and won—automotive manufacturers and SEP owners in this space are going to be saddled with

precedent that has been developed around a vastly different industry. Moreover, as described below, the automotive industry is facing a transition in its historical licensing practices that other industries where SEPs are common have not had to confront. Dropping existing precedent from other SEP disputes into the automotive industry may not provide the best results.

B. HISTORICAL LICENSING PRACTICES

The other reason predatory infringement is likely to occur in the automotive industry is the industry's historical licensing practices and the changes to those historical practices that the increased prevalence of SEPs is causing. As noted, patent licenses in the automotive industry have traditionally been taken at the supplier level. OEMs or vehicle makers have sufficient buying power to push the responsibility of licensing largely onto their suppliers, and many suppliers include indemnification provisions in their contracts.¹²⁰ In other industries where SEPs are everywhere, such as smartphones, licenses are typically granted on the end-user product, such as the phone.¹²¹ As SEPs become more ubiquitous in the automotive field, there is continued disagreement about whether the SEP licenses should be granted to the OEM or car manufacturer, or if they should be granted to the supplier or component manufacturer. When Avanci came onto the scene and offered licenses at the OEM level, there was dismay from both OEMs (like Daimler) and suppliers (like Continental). Unlike many of the systems in cars that have been licensed at the supplier level, many of the connected car systems are able to be profit centers for the OEMs, which charge for services such as Onstar or BMW Assist. Because of the disagreement over which entities should have to be licensed, it is more likely that (1) unlicensed patent infringement may go unnoticed by the SEP owner and (2) players in the field have become accustomed to being indemnified, and thus have not had the need to be concerned with potential infringement.

In addition to history, there are other differences between the automotive industry and other SEP-dependent fields. Specifically, there is significant value to the car without the inclusion of any SEPs; the greatest value of a car, of course, is simply to provide a means of transportation. Smartphones must have the standardized telecommunication technology to be functional, whereas connectivity in a car has generally been viewed as a feature, or a luxury.¹²² Even were injunctive relief to be reliably granted for infringement of SEPs, given

120. IAM, *Auto industry demands a fresh SEP/FRAND focus in 2023*, IAM (Jan. 25, 2023), <https://www.iam-media.com/article/auto-industry-demands-fresh-sepfrand-focus-in-2023>.

121. *See id.*

122. *See id.*

the perspective of these features as a luxury, rather than a necessity, it still may be a rational choice to engage in predatory infringement because an injunction on the SEPs would not render the entire product unusable, as it would if a smartphone maker were enjoined.

V. CONCLUSION

The automotive industry is incredibly innovative, developing technology within and incorporating technologies from other areas in ways that are making transportation safer, more efficient, and more fun, especially as it delves more deeply into autonomous driving and IoT applications. But these moves may come at a cost due to growing pains. It is important for this industry, which is much newer in the SEP arena, to be aware of the potential for predatory infringement and also to be diligent in helping to shape infringement precedent in a way that will facilitate continued innovation in this space.